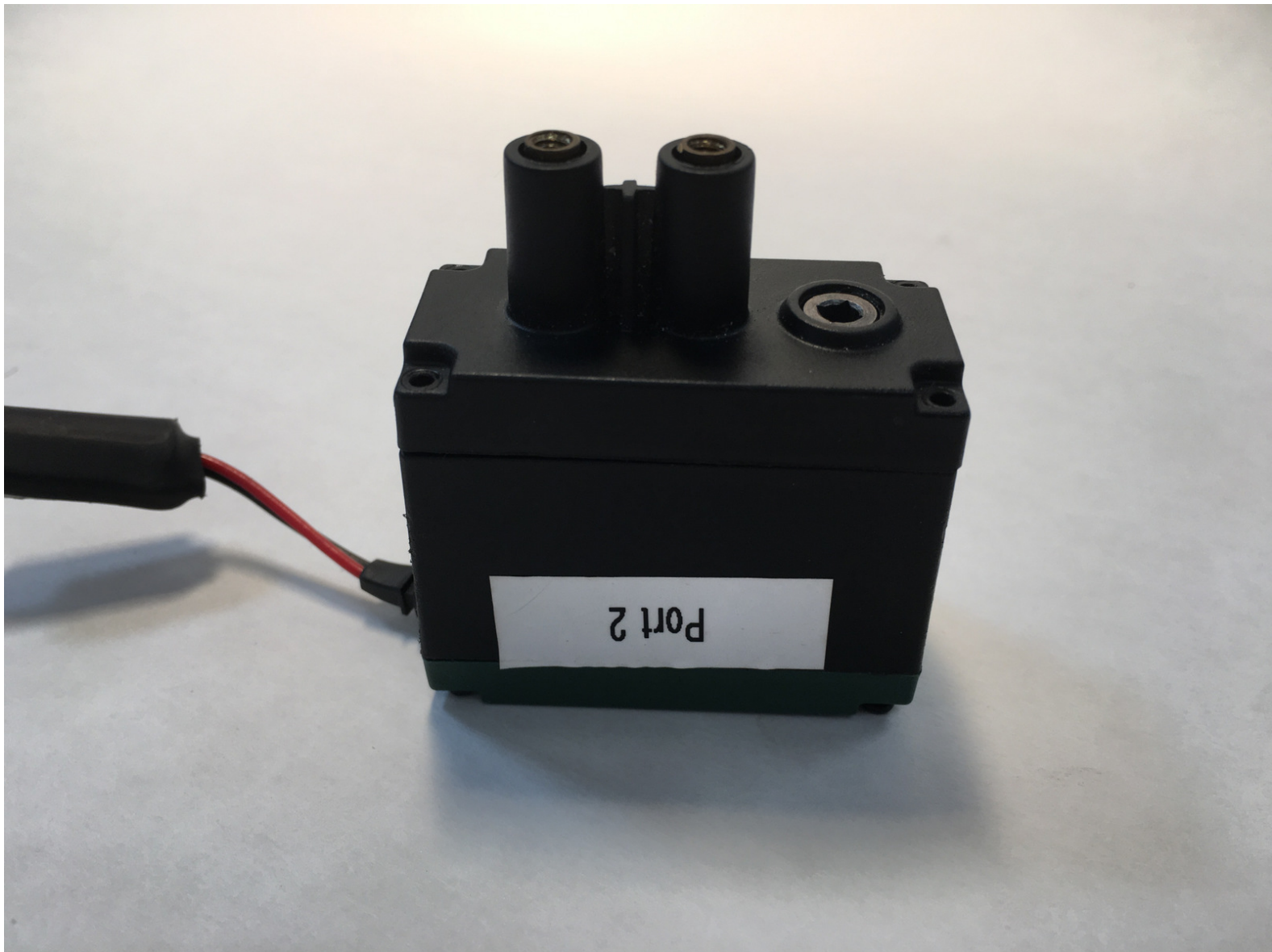




Vex Robotics Vex EDR 393 Gear Replacement

Replace the gears in your Vex EDR 393 motor.

Written By: Colin McInerney



INTRODUCTION

In this guide, you will learn how to repair a Vex EDR 393 motor in under 5 minutes!!



TOOLS:

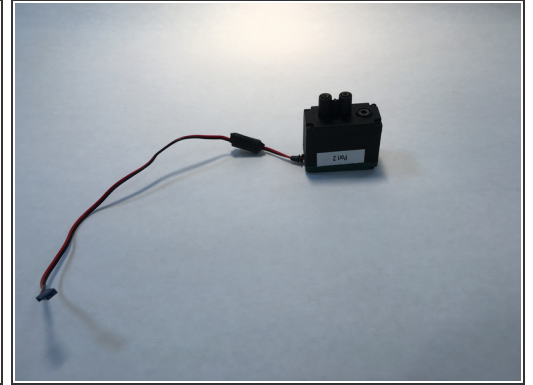
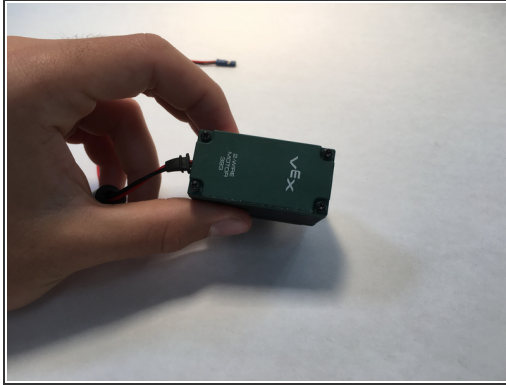
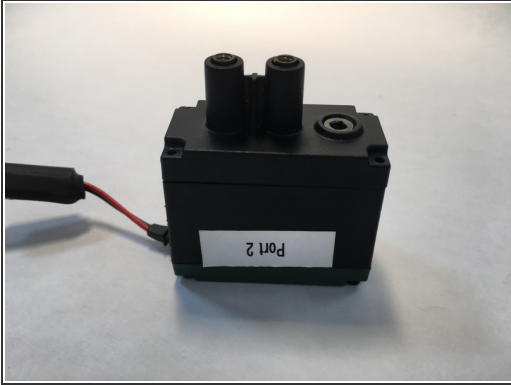
- [Small Phillips Head Screwdriver](#) (1)



PARTS:

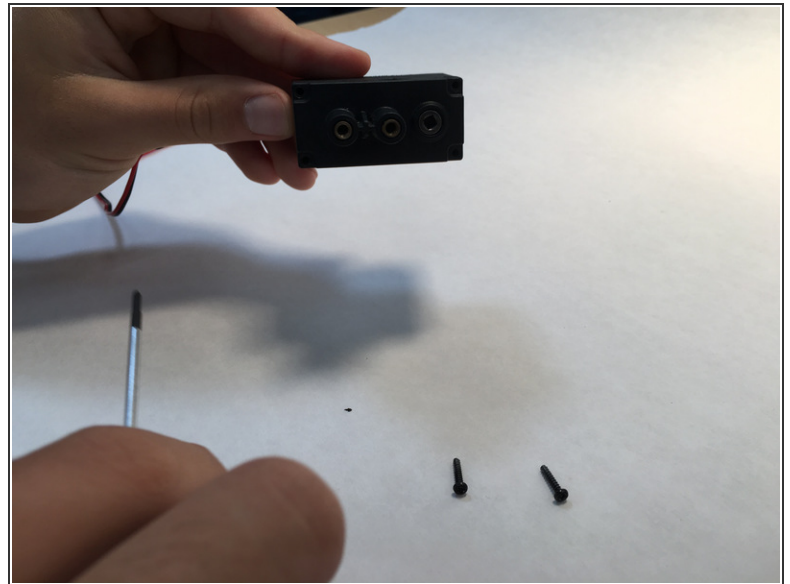
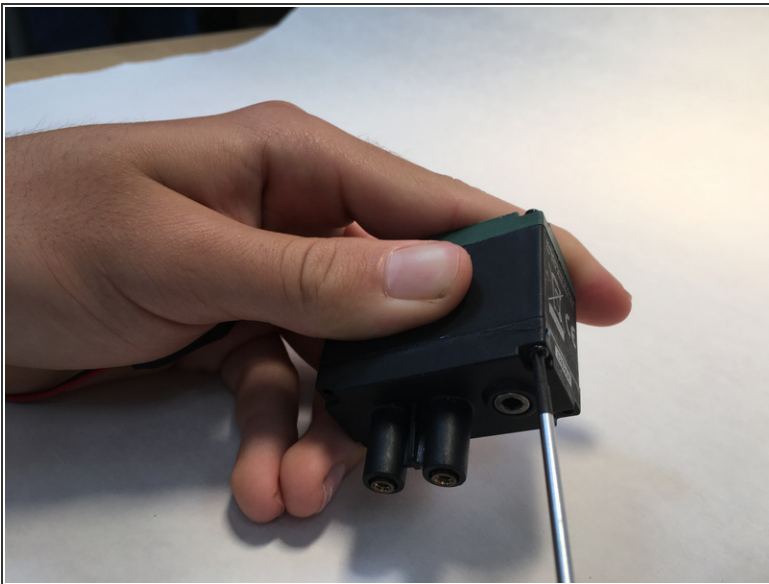
- [New set of motor gears for a Vex 393 motor](#) (1)

Step 1 — Motor Gears



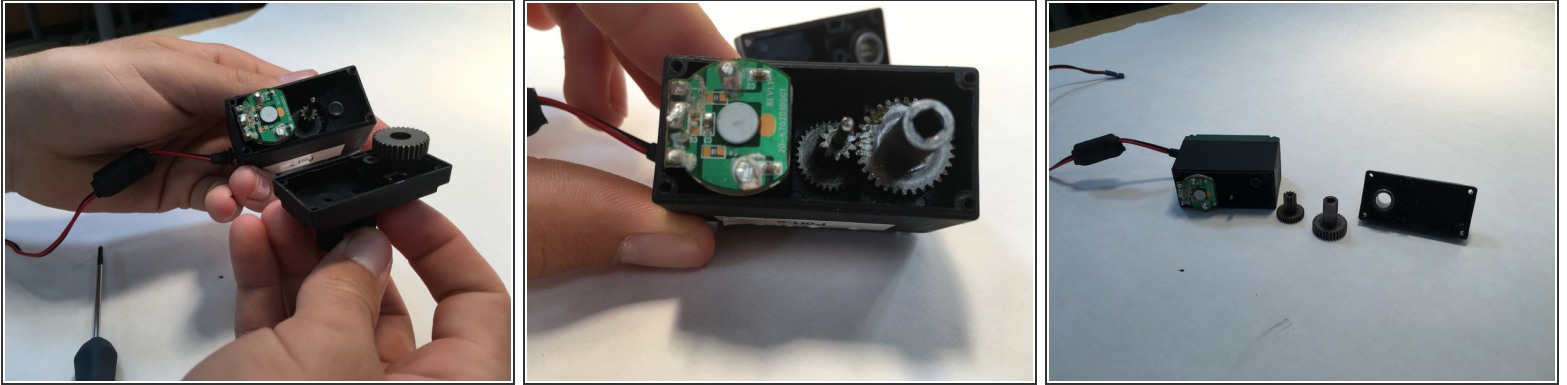
- This motors gears have been stripped! You can hear them clicking inside. To fix this motor we will be replacing the gears in both the top and bottom of the motor

Step 2



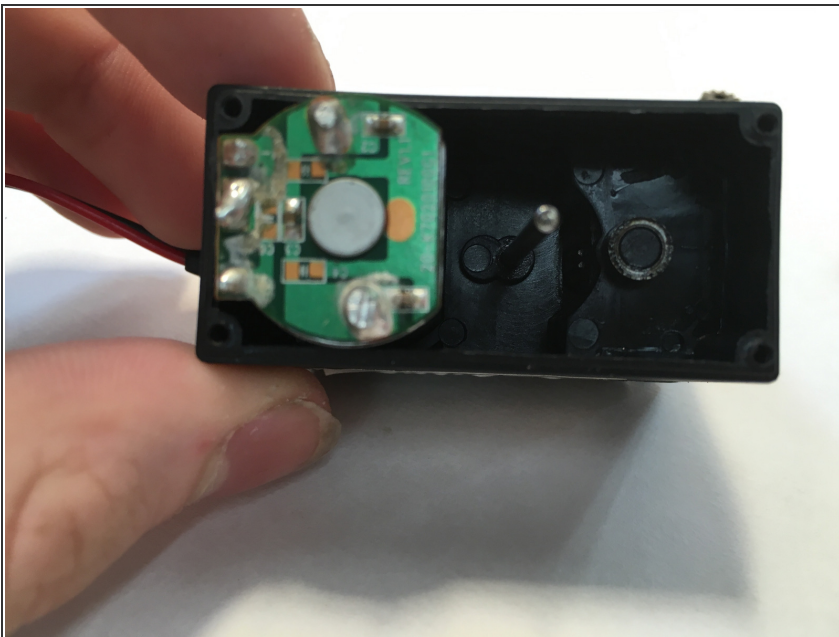
- Unscrew the four small black screws found in the corners of the bottom casing.

Step 3



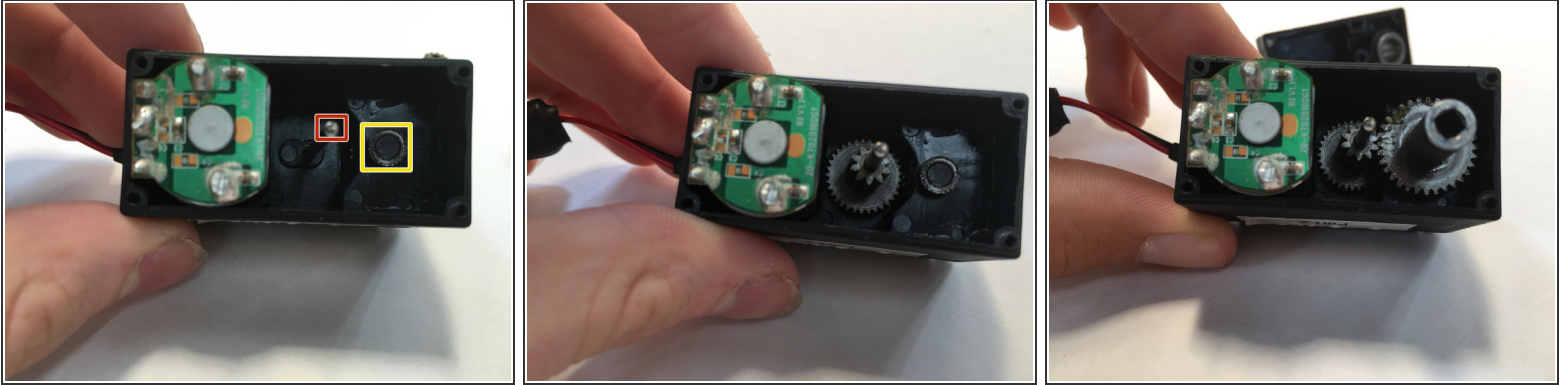
- Pull off the bottom of the motor, this will reveal two gears inside. One large gear with teeth on the base, and one with teeth on the entire gear.
- Remove these gears.
- ⓘ Keep these gears together until you are done. You will want to compare them with the new gears to ensure you have the right pair.

Step 4



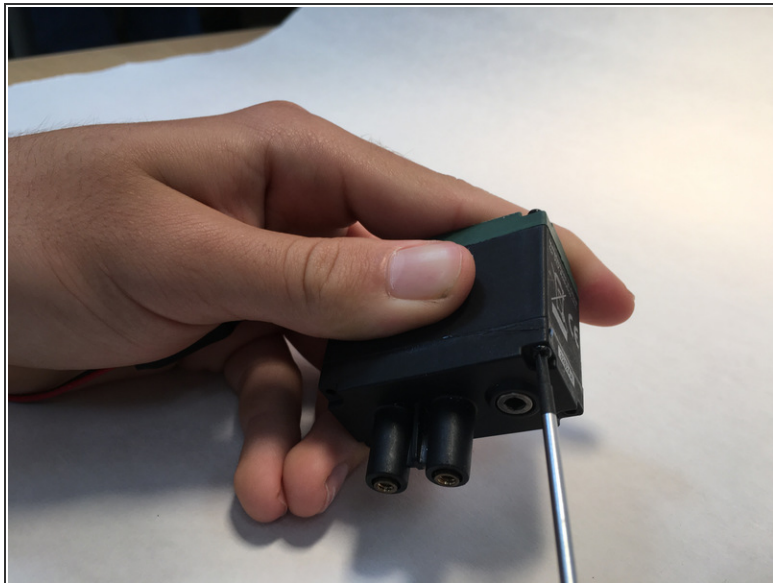
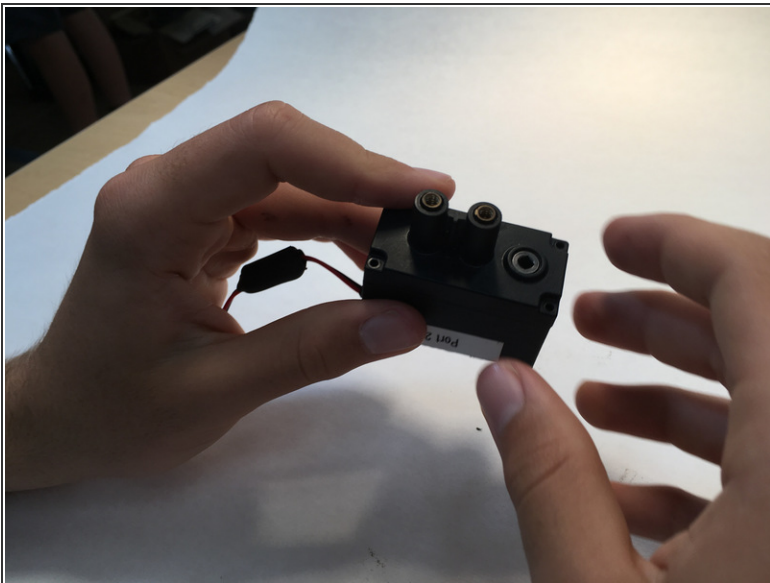
- Your motor should now look like this.

Step 5



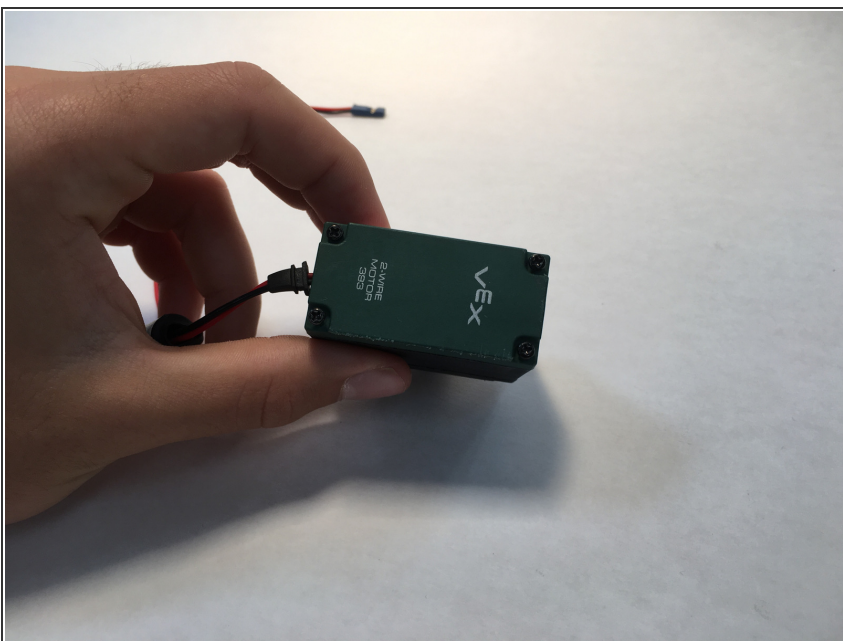
- Compare the gears you just removed to the new ones in your refurbishing kit. Select the top and bottom gears that match these two.
 - ⚠ If the gears you use do not go together the motor will NOT work.
- Take the gear that has teeth all over it and insert it onto the metal pin. Push it all the way into the bottom of the motor. It should connect with a small gear on the bottom.
- Now, insert the larger gear with teeth on the base onto the circular plastic peg.
- ⓘ Make sure the gears are lined up properly and that they are "grabbing each other" Spin the top gear with your fingers a few times to make sure.

Step 6



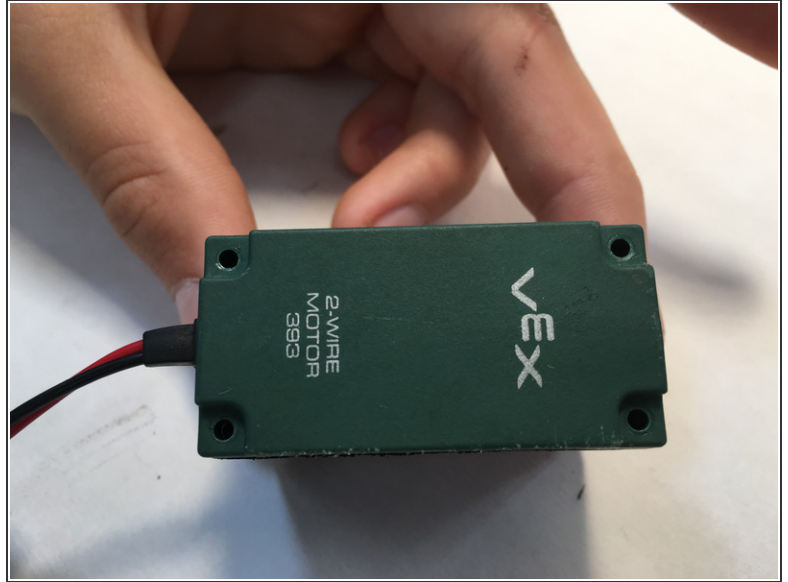
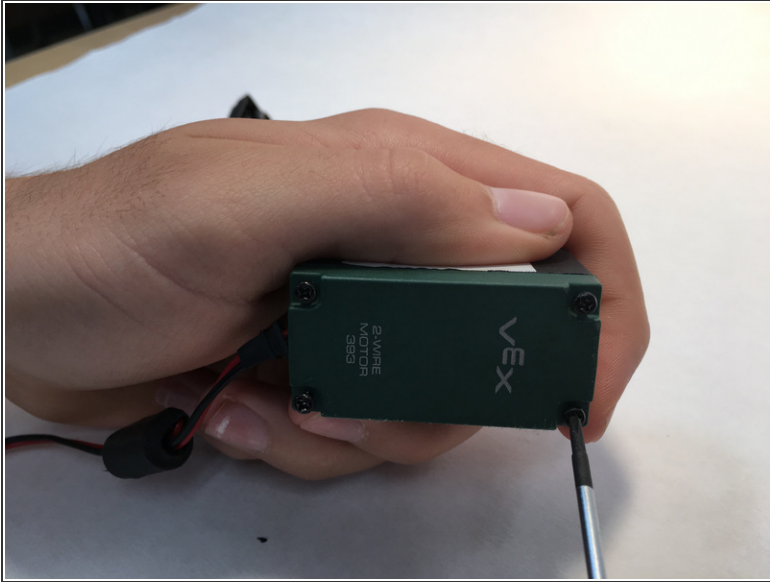
- Replace the black bottom of the motor and reinsert and tighten the screws to secure it to the motor.
- ☑ The small screws used in these motors are very susceptible to stripping so do not over tighten.

Step 7



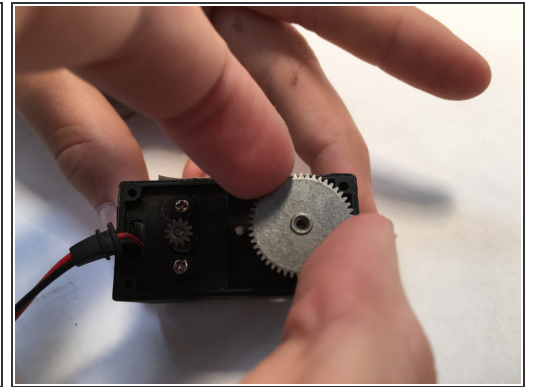
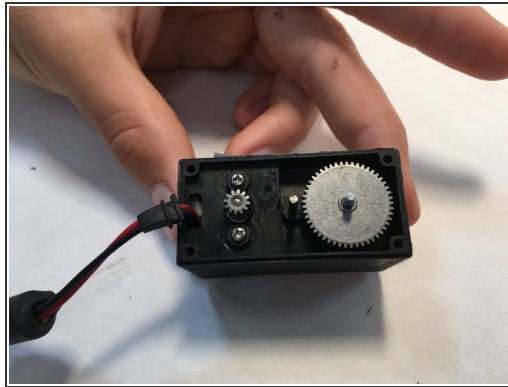
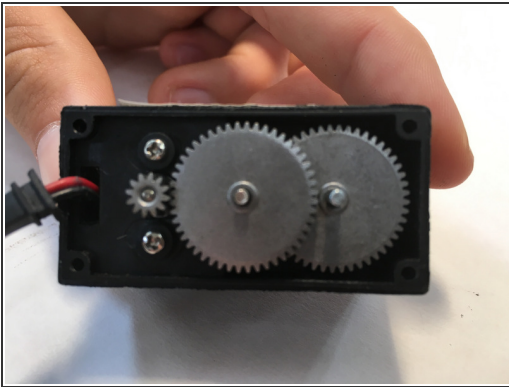
- Flip the motor over so that the top green casing is now facing you.

Step 8



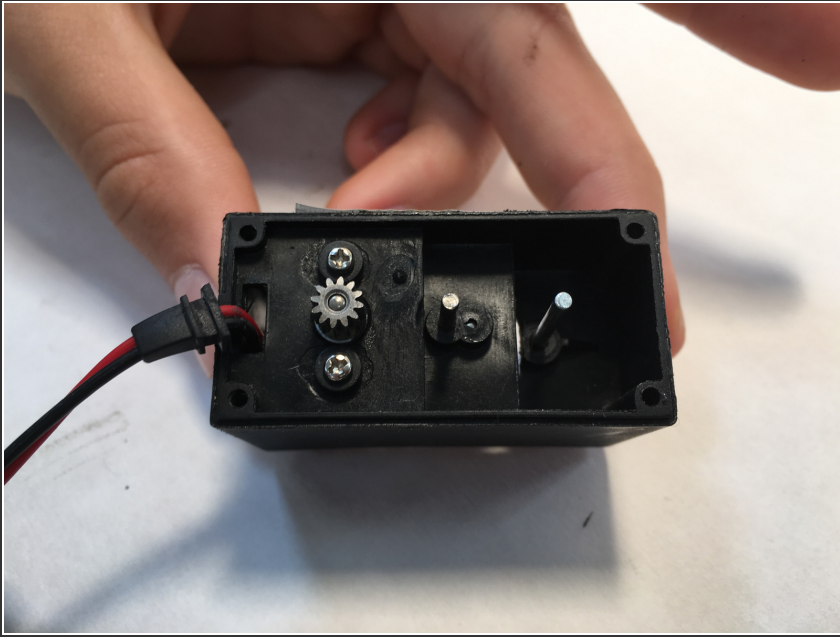
- Remove the 4 screws in the corners of the casing, being carefeul not to strip them.

Step 9



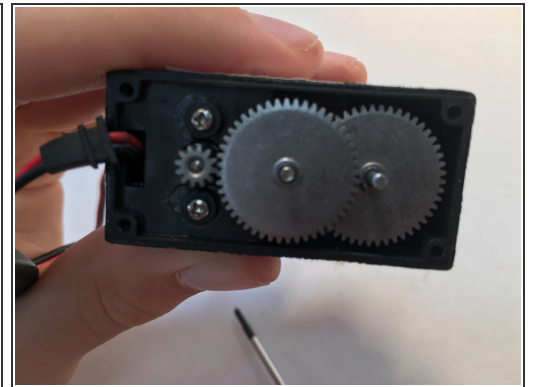
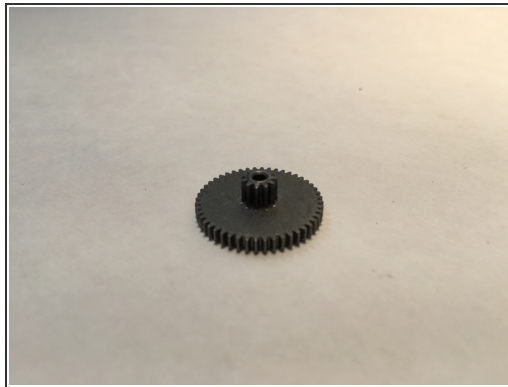
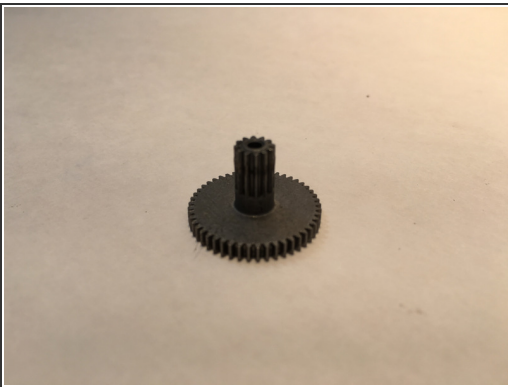
- Pull the casing off of the top of the motor
- Remove the two large thin gears inside.
- ⓘ The small gear on the left is attached to the motor module itself and can not be removed.

Step 10



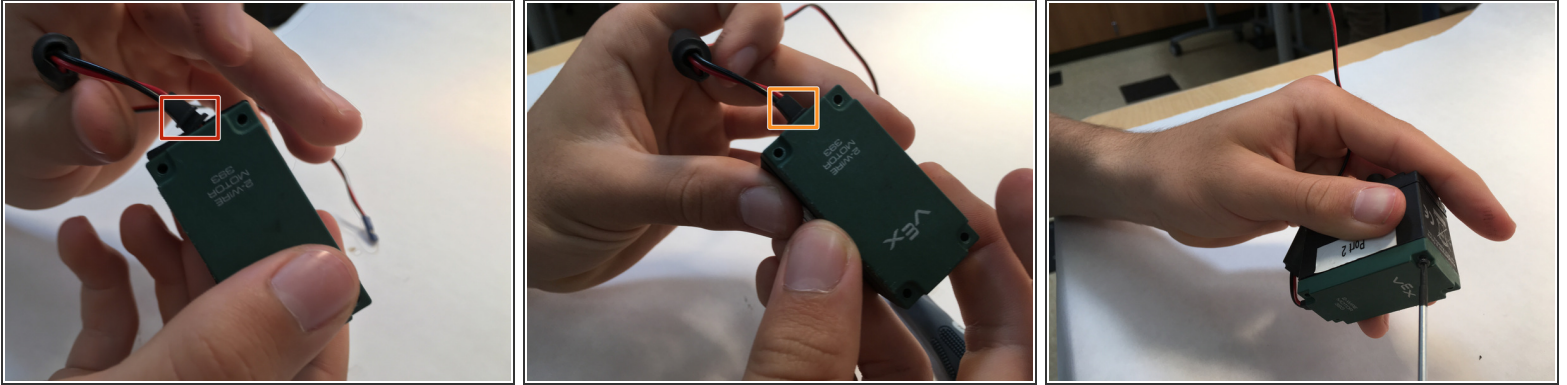
- Your motor should now look like this.

Step 11



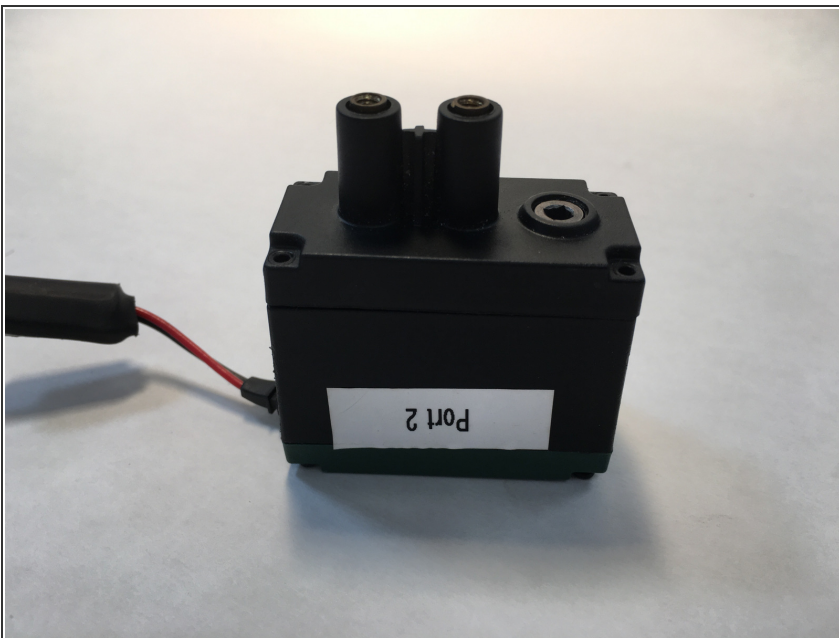
- Replace the old stripped gears with the shiny new ones from your kit.
- First place the gear with the long stem into the bottom of the motor. Make sure it catches on the little bit of gear sticking out.
- Next place the smaller gear in making sure that it catches on both the tiny gear attached to the motor and on the gear we just inserted.

Step 12



- Replace the green casing back on to the motor.
- When replacing the casing notice the highlighted rubber collar. Be sure that the casing fits between the ridges on that collar.
- It should look like the example with the orange square.
- Reinsert and tighten the screws.

Step 13



- Your motor should now be working again. Before reinstalling it on your robot test it either with a backup battery or by plugging it in to your cortex. If you hear more grinding or anything out of the ordinary reopen the motor and inspect it to make sure everything is installed correctly.

You can also use this process to change the gear ratio of the motor for different functions.

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